A GRADUAL MORPHOLOGICAL TRANSITION DURING A RAPID SPECIATION EVENT IN MARGINELLID GASTROPODS (NEOGENE; DOMINICAN REPUBLIC)

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Paleontological studies can bring to light two important aspects of the speciation process: long term patterns of morphological change, and the paleoenvironmental context of such changes. We examined the temporal patterns of morphological change and their geographic and paleoenvironmental context in species of *Prunum* (Marginellidae; Gastropoda) from the Neogene of the northern Dominican Republic. We document a speciation event from *P. coniforme* (Sowerby 1849) to *P. christineladdae* (Maury 1917) which is unusual in both its temporal expression, and in the relative clarity of the ecological setting for speciation.

We believe that the changes in morphology from *P. coniforme* to *P. christineladdae* represent a speciation event. The two species are distinguished by several shell features, including overall shape, spire height, relative height of the top of the lip, and apertural denticulations. The nature and magnitude of these differences, compared with morphological differences among extant species of *Prunum*, indicate that separate species designations are warranted for *P. coniforme* and *P. christineladdae*. A sequence of stratigraphic and morphological intermediates between these species provides strong stratophenetic evidence for speciation.

The stratigraphic interval characterized by intermediate morphologies includes approximately 22 m of section. Sedimentation rates yield estimates of approximately 73,000-275,000 years for our interval of morphologic change. This transitional interval represents between 0.6-2.5 % of the total duration of the ancestral species.

The patterns of morphological change exhibited by the two species generally fit the predictions of punctuated equilibrium; change from ancestor to descendent is relatively rapid, outside the transitional interval species exhibit no directional morphologic trends, and the ancestral species persists after speciation.

Our data reveal some information on the mode of speciation. *Prunum* species from our study area exhibit well-defined depth ranges. *P. christineladdae* occurs only in deep water deposits, whereas *P. coniforme* is common in shallow water deposits. Based on distributional data, we suggest that depth, or one or more of its associated variables, was critical to the isolation and evolution of *P. christineladdae*.